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THE ZOOLOGIST:

A Monthly Journal

OF

NATURAL HISTORY,

FOR

RECORDING FACTS AND ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES AND INSECTS.

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⁂ The List is brought up to the 1st of August, 1866.

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The Birds of Shakespeare. By J. E. HARTING, F.Z.S.

"THE instruction which may be drawn from Shakespeare is equal to the entertainment which his writings afford. We cannot peruse his works without having our understandings considerably enlarged. To promote, therefore, the knowledge of him is to contribute to general improvement."*

If Shakespeare is worth reading, moreover, he is worth explaining, and without a complete inquiry into his allusions the spirit of his writings can never be fully understood or appreciated. Pennant, in his 'British Zoology,' remarks that it is incumbent on every lover of Science to attempt placing the labours of ancient authors in a just light; to mark those errors that owe their origin to the darkness of the times; and to evince that many of their allusions are strictly true, many founded on truth, while many others contain a mixture of fable and reality which certainly merit the trouble of separation.

It is plain that Shakespeare had much reading at least, if they will not call it learning. Whatever object of Nature or branch of Science he either speaks of or describes, it is always with competent if not exclusive knowledge; his descriptions are still exact; all his metaphors appropriate, and remarkably drawn from the true nature and inherent qualities of each subject.† Indeed, it was the opinion of Dr. Johnson that Shakespeare commonly derived his knowledge of Nature from his own observation, and no one can fail to be delighted with the variety and richness of the images which he has derived from Natural History.

Having, from a mere love of the subject and admiration for the poet, carefully perused his plays, to ascertain what knowledge he possessed respecting birds, our inquiry has resulted in the following notes, which, it is conceived, will be found of sufficient interest to entertain all lovers of birds.

We have extracted every sentence of note in which there is any allusion to birds, explaining where explanation seemed necessary, and occasionally illustrating from other authors. It may with truth be said that there are many passages in Shakespeare's plays which, to one unacquainted with the habits of birds or ignorant of the terms employed in falconry, would be wholly unintelligible, but which, being interpreted, are found to contain the most beautiful and forcible

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* Prospectus to Stockdale's edition, 8vo, 1784.

† Pope.

BRITISH MUSEUM

metaphors.* Take, for example, the passage which occurs in 'Othello' (Act iii. Sc. 3), where the Moor compares his suspected wife to a "haggard falcon." †

From the following list it will be seen that no less than forty-three species of birds are mentioned or alluded to by Shakespeare. In some instances the references are very numerous, and although it has been our endeavour as much as possible to connect them, and so make our notes less disjointed, it has been found oftentimes impracticable from their nature to accomplish this.

Vulture
Eagle
Osprey
Falcon
Hawk
Kite
Buzzard
Owl
Thrush
Blackbird
Hedge Sparrow
Robin
Nightingale
Wagtail
Skylark
Finch
Sparrow
Chough
Raven
Crow
Rook
Jackdaw
Magpie
Jay
Wren
Cuckoo
Kingfisher
Swallow
Martin
Pigeon
Turtle Dove
Pheasant
Partridge
Quail
Lapwing
Heron
Woodcock
Snipe
Goose
Swan
Duck
Cormorant
Gull

VULTURE (*Vultur fulvus*, Linn.)

Only five allusions to this bird are to be found throughout the plays, and in none of them is the particular species determined.

> "Let *vultures* vile seize on his lungs also!"
> *Henry IV*. Part I. Act v. Scene 4.

> "Thus, while the *vulture* of sedition
> Feeds in the bosom of such great commanders,
> Sleeping neglection doth betray," &c.
> *Henry VI*. Part I. Act iv. Scene 3.

> "There cannot be
> That *vulture* in you to devour so many."
> *Macbeth*, Act iv. Scene 3.

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* "However much black-letter books may be necessary to elucidate some parts of Shakespeare's works, there are other parts which require some acquaintance with the pages of the Book of Nature." (Pye's Comments, &c., 1807).

† This passage will be found commented upon under the title "Falcon."

"O Regan, she hath tied
Sharp-tooth'd unkindness like a *vulture* here."
Lear, Act ii. Scene 4.

"Let *vultures* gripe thy guts."
Merry Wives, Act i. Scene 3.

EAGLE (*Falco chrysaëtos*).

"Were't not all one, an empty *eagle* were set
To guard the chicken from a hungry kite,
As place Duke Humphrey for the King's protector?'
Henry VI. Part II. Act iii. Scene 1.

* * * "That hateful Duke,
Whose haughty spirit, winged with desire,
Will cost my crown, and, like an empty *eagle*,
Tire on the flesh of me and of my son."
Id. Part III. Act i. Scene 1.

Tire is a term used in falconry. When a hawk was in training it was frequently necessary to prolong its meal as much as possible, to prevent it from gorging: this was effected by giving it a tough or bony bit to *tire on*, that is, to tear or peck at. Steevens quotes an example of the word used in this sense from Decker's 'Match Me in London,' 1631.

* * * "The vulture *tires*
Upon the eagle's heart."

And Mr. Collier quotes another from 'Histriomastix,' 1610, sig. F. 3.

"O how this vulture, vile ambition,
Tires on the heart of greatnesse and devours."

So, in 'Timon of Athens' (Act iii. Scene 6), one of the lords says,

"Upon that were my thoughts *tiring* when we encounter'd."

And in Ben Jonson's 'Catiline' (Act iii. Scene 3) we read,

* * * "And let
His own gaunt eagle fly at him and *tire*."

The eagle has always been considered the emblem of majesty, and has been variously styled the "king of birds," "the royal bird," "the princely eagle," and "Jove's bird." The power of vision in this bird is so extraordinary that to have an "eagle eye" has become proverbial.

> "Behold his eye,
> As bright as is the *eagle's*, lightens forth
> Controlling majesty."
> *Richard II.* Act iii. Scene 3.

> "Nay, if thou be that princely *eagle's bird*,
> Show thy descent by gazing 'gainst the sun."
> *Henry VI.* Part III. Act ii. Scene 1.

The opinion that the eagle possessed the power of gazing undazzled at the sun is of great antiquity. Pliny relates that it exposes its brood to this test as soon as hatched, to prove if they be genuine or not. Chaucer refers to the belief in the 'Assemblie of Foules,'—

> "There mighten men the royal *egal* find,
> That with his sharp look persith the sonne."

So also Spenser, in his 'Hymn of Heavenly Beauty,'—

> "And, like the native brood of *eagle's* kind,
> On that bright sun of glory fix their eyes."

And in 'Romeo and Juliet' (Act iii. Scene 5) we read,

> "An *eagle*, madam,
> Hath not so green, so quick, so fair an eye,
> As Paris hath."

There is a slight mistake, however, in supposing the eye of the eagle *green*. In the golden eagle the irides are *hazel*, in the spotted eagle also *hazel*, and in the whitetailed eagle *yellow*.

The power of flight in this bird is no less wonderful than that of vision, and eagles have been killed measuring seven and eight feet from tip to tip of wing, and strong enough to carry off hares, lambs, and even young children. Shakespeare was no doubt aware of this when he wrote,

> "This was but as a fly by an *eagle*."
> *Antony and Cleopatra*, Act ii. Scene 2.

And

> "An *eagle* flight, bold and forth on,
> Leaving no track behind."
> *Timon of Athens*, Act i. Scene 1.

Nevertheless we are reminded that the eagle, notwithstanding his great powers of flight, is not always secure,—

> "And often to our comfort shall we find
> The sharded beetle in a safer hold
> Than is the full-wing'd *eagle*."
> *Cymbeline*, Act iii. Scene 3.

In India, Tartary, China, Persia and other parts of the East, the eagle was formerly, and is still to a certain extent, used for hunting down the larger birds and beasts. (See Sir J. Malcolm's 'Sketches of Persia,' and Johnston's 'Sketches of Indian Field Sports.') We read that in the thirteenth century the Khan of Tartary "kept upwards of two hundred hawks and *eagles*, some of which had been trained to catch wolves; and such was the boldness and power of these birds that none, however large, could escape from their talons." Burton, in his 'Anatomy of Melancholy' (Lond. 1676, fol., Part 2, p. 169), quoting from Sir Anthony Shirley's 'Travels,' says, "The Muscovian Emperours reclaim *eagles* to let fly at hindes, foxes, &c., and such a one was sent for a present to Queen Elizabeth."

Owing, no doubt, not only to the greater difficulty in training them, but also to the difficulty of obtaining them, eagles are rarely trained to the chase in England. Captain Green, of Buckden, in Huntingdonshire, had a very fine golden eagle which he had taught to take hares and rabbits: and this species has been found to be more tractable than either the spotted or the whitetailed eagle.

Judging from one or two allusions in his plays, Shakespeare appears to have been aware of the eagle's use in falconry. In the following passage two hawking terms are used in connexion with this bird:—

> "Know the gallant monarch is in arms,
> And, like an *eagle* o'er his aiery, *towers*
> To *souse* annoyance that comes near his nest."
> *King John*, Act v. Scene 2.

This passage has been differently rendered, by removing the punctuation between "aiery" and "towers," and reading the former "airey" or "airy," and making "towers" a substantive. But I think the meaning of the passage, as it stands above, is sufficiently clear.

"Aiery" is equivalent to "eyrie," the nesting-place; and the verb "to tower" is a common expression in falconry, signifying "to rise spirally to a height." Compare the French word "tour." As a further argument, too, for reading "towers" as a verb and not as a substantive, compare the following passages from the same play and from 'Macbeth,' which plainly show that Shakespeare was not unacquainted with this word as a hawking term :—

> "Ha, majesty! how high thy glory *towers*."
> *King John*, Act ii. Scene 2.

And

> "A falcon *towering* in her pride of place."
> *Macbeth*, Act ii. Scene 4.

The only word, then, which remains to be explained is "souse." This also is a term borrowed from the language of falconry, and is equivalent to "swoop." It would seem to be derived from the German "sausen," which signifies to rush with a whistling sound like the blustering of the wind, and this is certainly expressive of the "whirr" made by the wings of a falcon when swooping on her prey.

There is a good illustration of this passage in Drayton's 'Polyolbion,' Song xx., where a description of hawking at wild-fowl is given. After the falconers have put up the fowl from the sedge, the hawk, in the words of the author, having previously "towered," "gives it a souce."

Beaumont and Fletcher also make use of this word as a hawking phrase in 'The Chances,' iv. 1; and it occurs in Spenser's 'Faerie Queene,' Book iv. C. 5, st. 30.

To "souse" is still used in the meaning of plunging and throwing provisions into salt and water, from the Latin "salsum," which sense agrees with the precipitate plunge of a falcon on a water-fowl. (See note to Staunton's Shakespeare, i. 469).

Eagles, like many others of the hawk kind, are very fond of bathing, and it has been found essential to supply them with baths when in confinement, in order to keep them in good health. In Henry IV. (Part I. Act iv. Scene 1) we read,

> HOTSPUR. "Where is his son,
> The nimble-footed madcap Prince of Wales,
> And his comrades?" &c.
>
> VERNON. "All furnish'd, all in arms,
> All plum'd like estridges, that with the wind
> Bated, like *eagles* having lately bath'd."

Bate is another hawking term, meaning to *flutter*, and occurs frequently throughout the plays, as will be seen hereafter.

> "The world is grown so bad
> That wrens make prey where *eagles* dare not perch."
> *Richard III*. Act i. Scene 3.

"More pity that the *eagle* should be *mew'd*."
While kites and buzzards prey at liberty."
Richard III. Act i. Scene 1.

The word "mew," derived from the old French word "mué," signifies a change, or the period when birds and other animals moult, or cast their feathers, hair or horns: hence Latham observes that the "*Mew is that place, whether it be abroad or in the house, where you set down your hawk during the time she raiseth* (*or reproduces*) *her feathers*."

It was necessary to take great care of a hawk in her mewing time, and in 'The Gentleman's Academie' (London, 1595, edited by Gervase Markham) there are several sections on the mewing of hawks, from one of which it may be learned that the best time to commence is in the beginning of Lent, and, if well kept, the bird will be mewed (that is, moulted) by the beginning of August. The verb "to mew," or "enmew," subsequently possessed the secondary meaning, as in the last quotation, of "to enclose," "shut up," or "confine." Thus, also,

* * "To-night she's *mew'd* up."
Romeo and Juliet, Act iii. Scene 4.

* * "Forth comming from her darksome *mew*."
Faerie Queene, Book I. Canto v. 20.

And

"Captiv'd eternally in yron *mewes*."
Id. Book II. Canto v. 27.

The Royal hawks were kept at the mews at Charing Cross during many reigns (according to Stowe from the time of Richard II. in 1377), but they were removed by Henry VIII., who converted the place into stables. The name, however, confirmed by the usage of so long a period, remained to the building, although after the hawks were withdrawn it became inapplicable. But, what is more curious still, in more modern times, when the people of London began to build ranges of stabling at the back of their streets and houses, they christened those places "mews," after the old stabling at Charing Cross.

The eagle has always been considered so far superior to all other birds as to merit the title of king of birds. We find many comparisons illustrating this throughout the plays.

In the first act of 'Troilus and Cressida' (Scene 2), when the forces are passing in review, so soon as the generals have passed, Pandarus, who with Cressida, is looking on, says,

"Ne'er look, ne'er look, the *eagles* are gone;
Crows and daws, crows and daws!"

And in 'Coriolanus' (Act iii. Scene 1),

* * "Which will in time break ope
The locks o' the senate, and bring in the crows
To peck the *eagles*."

"Dismayed not this our captains?
Yes, as sparrows, *eagles*."
Macbeth, Act i. Scene 2.

The conscious superiority of the eagle is thus depicted:—

"The *eagle* suffers little birds to sing,
And is not careful what they mean thereby,
Knowing that with the shadow of his wing
He can at pleasure stint their melody."
Titus Andronicus, Act iv. Scene 4.

"Thou art like the harpy,
Which to betray doth wear an angel's face,
Seize with an *eagle's* talons."
Pericles, Act iv. Scene 4.

The word *harpy* appears to be derived from the Latin "harpago," to grapple or plunder; or perhaps from the Greek *ἁρπη*, a hook or sickle.

The mention of the word "talons" recals to mind the boast of Sir John Falstaff,

"When I was about thy years, Hal,
I was not an *eagle's* talon in the waist."
Henry IV. Part i. Act ii. Scene 4.

How he altered in appearance as he grew older we all well know.

"Drones suck not *eagle's* blood, but rob bee-hives."
Henry VI. Part II. Act iv. Scene 1.

J. E. HARTING.

Kingsbury, Middlesex.

(To be continued.)

Letters on Ornithology. By HARRY BLAKE-KNOX, Esq.

LETTER II.—BRITISH LARIDÆ.

Subfamily XEMA. Species LARUS RIDIBUNDUS and L. CAPISTRATUS.

A Natural History of the Brownhooded or Blackheaded Gull, with an Account of all its Plumages and Transformations from the Nestling to the Adult Bird; also some Questions about the Masked Gull.

Habits.—The brownhooded gull, the only bird of its family that can be said to be indigenous to Ireland, or in fact to the British Islands, (as I believe neither the masked gull nor any other of the dark headed gulls have been found breeding in the United Kingdom), is both a marine and an inland bird. Throughout the autumn and winter it is very common on our eastern coast, and being gregarious is seldom met with alone. From the middle of March it grows scarce on the sea, both the adult and young birds retiring inland, the former for the purpose of conserving their species, the latter prompted by a latent instinct to visit those haunts of their parents at this season, so that in after years they themselves may not be strangers to them; however, be this as it may, both young and old leave the sea from the middle of March, returning again with the young birds of the year in July. As this bird positively does not breed till three years old, as I will hereafter show, I can form no other opinion but that an impulse of Nature causes them to leave the sea, or that the young do so in imitation of the adults, and that at a time too when the sand eels are most abundant in the Bay. Sometimes, however, flocks visit their old winter feeding-grounds during summer, and these flocks, though to the uninitiated looking like adults, are composed of two-year old birds, or the unmistakable young of last year. Thompson has also seen these seemingly adult birds in flocks during summer far from any breeding-station, and strangely considered them "barren" birds, as we also read of the kittiwake at this age being considered barren, notwithstanding the immature aspect of the genital organs and the bastard wing still marked with black at two years old, in both kittiwake and blackheaded gulls, whereas the spurious wing of the kittiwake in the adult is pure blue, in the blackheaded gull pure white. "From the River Lagan," says that true naturalist Thompson, "they used to be wholly absent from the period of their retirement, late in the spring, until old and young returned in company. I was therefore surprised to see a flock of forty-nine fly high above the Lagan Bridge early in the evening of the 15th of May, 1850, all adult birds, and followed by two or three smaller flocks proceeding seaward, in the same course, most probably to their breeding-haunt. Many adults, I was told, were daily observed in the Bay from this time forward. On the 4th of June I remarked a number of old birds in a similar place in Lancashire—the marine strands about Fleetwood; and on the 2nd of July about forty in that state of plumage appeared in a flock, at a locality of the same nature, between Drogheda and Dublin. Their wandering far from breeding-haunts, in the midst of the season, would therefore seem to be not unusual, unless that such birds—like adult kittiwakes, hereafter to be mentioned—do not increase their species." Yarrell supposed that the bird of a year old, figured in his plate, was breeding, because shot at the breeding-grounds, yet a moment's dissection would have proved the contrary. Montagu believes it mature at a year old, and tells us that it loses the bar on the wing and on the tail in its first spring, which it never does till the summer or early autumn moult: he gives no dates, and his plumages are incorrect. Macgillivray is quite accurate in his plumages, but traces them no further than the second autumn. The blackheaded gull is a most graceful bird on the wing, the pale blue back and snowy breast looking intensely sparkling if viewed against a lowering sky, and many a dim picture of wintry storm has the buoyant tern-like flight of this gull gladdened, as I sat on some lonely coast cowering from the searching sleet among some of Nature's ruggedest cliffs, with the mighty Atlantic thundering at my feet, where the only sound of *living* life was the wild hoarse laugh of the wagel (young herring gull), as he soared by, seemingly wondering how a man could love the solitude that to him was home. Unlike the true gulls the brownhood seems to revel in the storm, and never is its flight more varied than at these times: flapping gently along at one moment, the next with snowy under parts thrown up to the storm, it will permit itself to be carried fifty yards or more, sideways, from its direct flight, and will again assume the old position, flapping gently not a foot above the boiling sea; hid at one time between two waves, to be seen the next to alight upon the summit of a billow, pick up some scrap, and be left *still* flying as the wave tosses its white crest from under its still white breast. It seems as happy and as much at home as if the day had August for its mother, and a bright sea tempted it lazily to lie in clusters upon its glittering surface, picking the old feathers from its breast to give place to those for the coming hard winter. It seems as happy as if it and the kittiwake were united together, as of old, in genial autumn, to wage war upon the luckless herring fry, when with shriller cry and more active dart, it used to take its prey from the very bill of its three-toed brother; and he himself, poor fellow! how those crow-like thieves, the skuas, would force to disgorge, with angry wail, after vain and fruitless efforts at escape, a part of his last hard-earned meal. In the most stormy easterly weather this gull keeps to the sea, unlike the true gulls, which always in easterly gales soar over and along the rocks of this iron-bound coast. We pass through a large city (Dublin), and from its busy quays we see the brownhooded gull, in its pearly winter plumage, in the very heart of that city, sailing and gliding about its polluted river, without any fear of the listless idlers that gaze upon its varied flights, and wonder how its bright red legs and pure breast can touch without contamination that monstrous cesspool—that disgrace to civilization—the River Liffey. We see it taking long things in its mouth, and scarce dare think what they are, yet their white and knotted bodies put the name into our mouths: they are tapes, and bloated grubs and other beastly food; but still it looks as pure as if the bright green brine was dancing still beneath its wings. We find ourselves upon a desert strand,—a wild black oozy slob,—its muddy stones are overgrown with dark and sickly weeds and green slime; beyond, stretch those miles of gray sand, appearing as if smoking, for the wind is carrying their light particles along in clouds. The air is impregnated with the smell of iodine, so sweet to the wild-fowl shooter, and many cries come to his ears—the sounds of Nature, the song of birds, making him still more lonely, still more at home. Loud above others sounds the curlew's *lonely* whistle, and next the blackheaded gull's varied cries and screams, "kree kree," "krek," "kree-e-e-e," "kree-a-kree," "shek-ak-shek-ak," "sil lee-e-e,"—apt music for the place and scene. Yes, here the bird that seeks the city's heart walks his domain, leaving the impress of his little scarlet foot on the shaking ooze, as with lordly step and nodding head he seeks Crustaceans, Astereæ and marine insects, and worms in the mud; but here he shuns you: he is ever wary when man *seeks* him either on sea or land. The farmer follows his plough with trudging step, laying bare the secret haunts of worms and other vermin: behind him and on either side follow the little blackheaded gull and his more noble brother, the common gull, and occasionally the herring gull—fearless, silent, taking no heed of the clamorous rooks, but all unitedly doing man a service, and preying on the scourges of his crops. More than one has felt a love for Nature, as they saw these beautiful birds, made more beautiful by the contrast with the dark brown earth; and many a farmer's boy has wondered what like the sea could be. Many of this species permanently frequent our large lakes, and you will rarely pass Conn or Corrib without seeing gulls. These birds must exclusively live on fresh-water fish and insects, and those grubs, &c., derived from the neighbouring fields. Suppose yourself in the far West of Ireland, black peat bog on every side, what land is cultivated is blacker still than the bog or its pools of dark water, black stacks of peat and a blacker sky. This dreary aspect occasionally relieved by some mud hovel, with tottering walls and withered thatch kept on by heavy stones, its thin column of blue smoke ascending and impregnating the air with the *monotonous* aroma of burning peat; or perchance some wiry sheep are striving to graze on a tawny slope, for though it is May there is no growth yet; one stunted tree by the cabin possessed by two magpies and their nest (for what Connaught cabin is without its magpie's nest!) There is nothing green, nothing bright but the magpies. Stop! there is, though, something to vie with the *burnished* magpie. Can you not see his dark brown head from this—his blue back and the snowy margin to his wing? Is he not more beautiful than when you saw him last in Dublin Bay, as he gladdens that bleak prospect and your heart, sea naturalist? Why does he seek a land like this, in preference to the sparkling waters of the sea? Because this is "home," and let it "be ever so humble, there's no place like home." There is the low flat lake, where a colony of these birds breed; that little undulating swell of land had hid it from our sight, and from its shores—grown with reeds and bulrushes, all withered now, their lanky stems reflected in the dull dark water—rise a company of these birds. I wonder could there be a wilder scene! Heigh ho!

Food.—The blackheaded gull (as are most of the gulls) is omnivorous. I have taken fish, grain, bread, candle-grease, pieces of oily cotton thrown from steamers, meat, vegetables, insects (particularly moths, dragonflies and water Coleoptera), worms, crustaceans, mollusks, Radiata, &c., from their throats. Of their feeding on and taking the ghost moth at night on the wing, as stated by Thompson, I have had ocular proof, and in addition to his statements I may remark that the wings are cleverly bit off and discarded, the gull never alighting. This habit links them closely to the marsh terns. "As a difference of opinion exists," says Thompson, "about certain species of birds eating slugs, or shell-less snails, on the 10th of August, 1833, I tried four young blackheaded gulls with different species of them; the small yellowish one (*Limax agrestis*), the young of the speckled (*L. maximus*), and the small blackish one with orange belly (*Arion hortensis*). These were offered to the gulls after their usual daily time of being fed was past, and when they were extremely vociferous for food. On the slugs being presented they all four dashed open-billed upon them, and picked up a slug each, which was no sooner done than they one and all flung them violently away with evident disgust: some of them returned a second time to the charge, and again picked up a slug, but this was as rapidly expelled as at first."

Flight, Swimming, Resting.—The flight, as I stated before, is very like that of some of the terns, with a strong blending of that of the gull: it is extremely lasting and very buoyant; the direct sailings, however, are unlike the true gulls, being short, though the power of turning and twisting without beating the wings is surprising, a bird often appearing as if mortally wounded, by throwing itself from side to side, and if accustomed to be fired at will do so while you are presenting the gun: these eccentric flights may be seen without any assignable cause. When taking their food from the water the legs dangle in it, and the piece is seized in the tip of the bill. Their most graceful evolutions in taking food are called forth should it be a rapid stream, one bird vieing with another for a scrap. Should the piece be too large to swallow, it will alight on the water and shake it into shape. The flight of a colony of these birds when disturbed from their nests is truly marvellous, and so intricate are the windings that it is past description, for to follow one bird would be impossible. Strange aërial flights, too, I have seen before bad weather in winter, and have watched birds till totally lost to view, so high have they ascended. They swim like the other gulls with a jerking motion, the breast deepest, the tail elevated and the head gracefully curved or crouched. In rising they make no seeming effort, except opening the wings. They seldom, when on sea, alight anywhere but in the water. When inland they alight freely, and I have even seen them standing on a railing, but the feet not closed. When standing, the head is generally carried crouched.

Cry.—The cry is very various, and as I have endeavoured to word some of its commonest sounds before, I shall not write it again, only adding that I think "ridibundus" equally a misnomer as "blackhead." "Scolding" would be more appropriate than "laughing," considering it the only British gull that does not "laugh," and whose notes sound always pettish and irritable.

Nidification.—The nest is built in a tuft of rushes standing isolated in the water, among the herbage at the bank and on the ground. It is composed of withered substances, those collected in the vicinity, and flat. The eggs range to four; I have seen five, and Thompson mentions six. Very various in size, colour and markings. The ground-colour is pale brown, dark brown or green-brown; spotted or blotched or streaked with brown, black, gray and purple. It is folly to think to discern the allied species of this family by the size of the egg, as they are often several degrees smaller than the type. I have seen eggs called masked gulls' that I could procure a basketfull of any year, they being to my eye, and perhaps it is rather critical, only small blackheaded gulls'. I never met with this gull breeding anywhere but by fresh water. There are so many capital accounts of breeding-stations of this bird already in print that I will not trouble to describe one, but refer again to the Belfast naturalist, and no ornithologist should be without Thompson's 'Natural History of Ireland.' Nidification begins in May; the young are out from the end of that month throughout June. On account of the robbery of eggs, we suffer a little annoyance in tracing the plumages of the gulls, moults being sometimes a month or six weeks late on this account, and examples rather dwindled. In my descriptions of plumage I shall therefore always use the early bird, so that readers must not accuse me of ignorance if I state the moults a little earlier or perhaps later than their experience.

Plumages.—No. 1. *Young in Down.* Down long, very soft; wood-brown or pale brown above, spotted black; pale beneath, the sides spotted dusky; on the throat a dark patch; under eyes a white patch. Bill and feet olive.

No. 2. Link 1. Mixture of down and first plumage.

No. 3. *First Plumage or First Summer.*—July. *Upper surface:*—Head, top of head and nape from gape under the eyes to the ear-spot brown, clearly indicating the future hood; the forehead and a circle round the eyes whitish. The neck is white, except at its junction with the body, where it is banded by a deep band of dull brown, with fainter edges, not encroaching on the breast, but running down and forming an angle before the wings. The back, shoulders and scapulars deep brown, the edges wood-brown or tawny. Rump and tail-coverts white. Tail white, deeply banded at end with black-brown; tips pale; first feather pure white, seldom with dark at the end. Upper coverts of secondaries deep brown, with pale tips; the lower coverts of secondaries chiefly blue-gray; some are marked with brown. *Under surface:* —Yellowish white. Bill gray, flesh at base, dark tip. Feet earthy flesh. (In collection.)

No. 4. Link 2. *First Autumn Moult.*—Begins in August, and is complete in September or October. Some of the back and scapular feathers change by transmutation, the greater part by moult. In this stage the back, shoulders and scapulars are mixed with new blue-gray feathers, and the head with white; the band at base of neck is also falling off. (In collection.)

No. 5. *First Winter.* November. *Upper surface:*—Head and neck white, concealed parts of head-feathers gray or brownish; ear-spot and that before eye black. Back, shoulders and scapulars pale blue-gray. Rump and tail-coverts white; tail unchanged. Margin of wing white, and primary coverts and bastard wing white, marked with black and gray. Upper coverts of secondaries the same as in No. 3, but worn very pale at the edges, the centres still deep brown; tertials and some of the secondaries brown, with the edges pale; these form the brown band from the carpal joint across the wing to the tertials; the lower secondary coverts generally as the back. *Under surface* pure white. Feet dull flesh-colour. Bill flesh-colour at base, dark tip. The primary quills vary more or less; they are never tipped with a white spot. *Type of the Primary Quills.*—No. 1. Shaft white, except a quarter of an inch at end brown, both filaments for half an inch at tip brown; greater filament white, well bordered with black all its length; lesser filaments all black, except along the shaft a narrow line of white widening towards tip. No. 2. Top of shaft and filaments brown, deeper in extent than in No. 1; dark bordering of greater filament much wider; the white edge to shaft of lesser filament is much wider and usurps the whole of filaments towards base of quill. No. 3. A deeper brown tip and a still deeper band to greater filament; the white usurps more of the lesser filament. No. 4. The same, a greater usurpation. Nos. 5 and 6. The white usurps much of lesser filament and grows blue, brown nearly occupying all greater filament. No. 7. In the lesser filament the white has turned blue, only bordered for a very short distance with dark, all greater filament brown. Rest are generally blue; the 8th with a black tip. (In collection.)

No. 6. The above plumage continues till February, when the base of the bill and the feet turn an earthy red colour.

No. 7. Link 3. *First Spring.*—March. Head in moult only. The hood sprouts through the white feathers; the bill and feet turn a dull carmine-red; the band through the wing is rather broken and faded. (In collection.)

No. 8 A. *Second Summer.*—May. The dark brown hood is assumed; it is not so deep down the throat as in the adult. Feet arterial blood-red; bill, the same, except at tip murky. Bar through wing and the rest of plumage as in first winter.

No. 8 B. August. Hood faded to mouse-colour. Bill and feet bright carmine. Band through wing still, but very broken, and with many new blue feathers through it. Rest of the plumage a worn addition of first winter. (In collection.)

No. 9. Link 4. *Second Autumn Moult.*—Begins often in July, though generally August. The whole plumage, quills and tail are renewed by moult, duration of which varies. The brown hood is sometimes lost first, nearly assimilating the bird to that of first winter. Feet and bill sufficient diagnosis. When the moult is complete the bird is in—

No. 10 A. *Second Winter.*—November. Same as the adult in winter, hereafter to be described, but the feet and bill are *pale scarlet or sealing-wax colour*, and the latter always black at tip. Bastard wing, and some of primary coverts generally, *strongly marked with black and gray*, invariably *shaded with gray*. (In collection.)

No. 10 B. February. Legs and bill scarlet and carmine.

No. 11. Link 5. *Second Spring.*—March. Assumes the hood by moult. Feet and bill a deeper colour.

No. 12 A. *Third Summer.*—May. As the adult in summer. The only difference that the bastard wing and sometimes some of the primary coverts are *marked with black and gray, often very faded.* (In collection.) The testicles of the male not larger than those of the breeding blackbird, one nearly invariably lead-colour: the ova, though not necessarily uniform, are deficient in development and veins; by the microscope no loss can be detected. Testicles of the adult frequently one inch long, developed, cream-colour, veinous. In the female the ripe ova contain the yelk, or eggs have been detached. In June the examinations are more conclusive as regards the female; the male has often lost all trace of having bred. The examination of the bones also is a good test for youth. This is generally the "barren" blackheaded gull of authors.

No. 13. Link 6. *Third Autumn.*—Moult is general. Birds frequently met with with the hood mixed with white. Bill and legs carmine. This moult generally begins in August and September, though it is often protracted.

No. 14. *Third Winter.*—As the adult in winter.

No. 15. *Adult in Winter.*—From a bird in November. Head, neck, rump and tail-coverts, tail, bastard wing and end primary coverts pure white, as are all the under parts and the margin of the wing; the spot before eye and the ear-spot black. Back, shoulders, scapulars and wing-coverts pale blue-gray. Feet and bill deep scarlet-carmine. Eye-lids reddish; irides hazel. *Type of the Adult Primary Quills.*—No. 1. Tip, including shaft and filaments for half-an-inch, black; rest of shaft white; lesser filament from the black tip for two inches pure white; rest consists equally of black and white, the black outwards; greater filament from the black tip for one inch all white; rest white edged with black, the edge growing deeper towards the pen. No. 2. Entire tip for half-an-inch black; shaft white, except at tip; all the lesser filament but tip white; greater filament same as No. 1, but edged with black throughout. No. 3. Tip deeper; greater filament as in No. 2; black edge larger; lesser filament white for two inches after the black tip, edged with white; shaft but at tip white. No. 4. The same; at point a white spot; the black edge not so extensive to the lesser filament; the white of greater filament bluish lead-colour. Nos. 5 and 6. Closely similar; the rest are lead-colour, with a dark fringe. No. 7 has sometimes two black spots at tip. As these quills remain on a year till the next autumnal moult, the edges and tips are liable to variation from wear. (In collection.)

No. 16. Link 7. March. The hood assumed by moult, though in old birds I have known this change by transmutation.

No. 17 A. *Adult in Summer.*—May. As in winter, but with a dark soot-brown hood. The feet and bill arterial blood-red. Eyes encircled with white. The under parts often pale or very rich rose-colour.

No. 17 B. Hood faded and mouse-colour by July. (In collection.)

No. 18. Autumnal moult begins in August or September; duration varies. The new white feathers turn the hood into strange shapes.

Barren Gulls.—I cannot conclude without some remarks on this subject, as it is an important one. Taking the gull *naturally*, I cannot think it lives to be barren; taking it as *man has left it*, I can quite believe it to become barren, and that long before its natural term of life, and for these reasons: according to Nature the gulls have but one brood in the year; to satisfy man they are often forced to lay two, if not three, broods: this is sufficient to exhaust the propagating agents, though not of necessity the health; so that gulls may live to be barren. There may be two kinds of barrenness, temporary and chronic. It is generally admitted that the gull will have only three broods of eggs in a season (and only one if not molested): supposing three broods of eggs deposited and taken before the end of June, then for that year it is barren: this is temporary barrenness. Chronic barrenness would be when the power of propagating had ceased, either from excess of age or from a frequent, undue and unnatural tax on the virile organs. I also believe that most of the sea-fowl are polygamous or indiscriminate, or, in other words, the males think that *tuum* is *meum*. Particularly in gregarious sea-fowl I have witnessed this, and have seen females not refusing three lovers, following. I hope you will not say as a friend did, laughing, "'Pon my soul! you are a *nice observer*."

Masked Gull.—Before making any observations on this bird I should like it to be understood that I do not emphatically deny the existence of a gull distinct from L. ridibundus, with a mask instead of a hood, but that I do consider it doubtful, and particularly many of the so-called masked gulls shot and seen in British waters. Before giving my experience of *masked* gulls I shall put the following questions, which I earnestly hope, and I am sure every reader of the 'Zoologist' will join in the wish, some *experienced* person will answer, and set all controversy at rest:—

1st. Where is the habitat of the masked gull?

2nd. Has a gull ever been found breeding with a mask instead of a hood? If so where and when, and by whom found?

3rd. Locality of nest, character and description of the eggs *proved* to be those of L. capistratus?

4th. Does the only difference in plumage lie in a mask instead of a hood, and the colour of the bill and feet?

What I can learn of this bird is that it has no known habitat, but is rare wherever it occurs; that it has never authentically been found breeding; that eggs said to be of the masked gull are only smaller than those of the blackheaded gull, a very feeble ground of distinction, as the egg of the blackheaded gull is often smaller than that of the so-called "masked" gull: that the great distinction lies in the size, L. capistratus being smaller than L. ridibundus; in the colour of the feet and bill, which in the former are dull red, in the latter arterial blood-red in summer; in the brown of the head assuming a masked appearance in L. capistratus, a hooded in L ridibundus: the real brown of L. capistratus often takes the place of the sooty brown of L. ridibundus, so is consequently not a distinction. In respect of size, I can only say that I have shot many blackheaded gulls in the winter dress identical with the masked gull in this respect, and as there is no known difference in winter but this I might call these masked gulls; but then, unfortunately, the same thing occurs in summer when the hood is to the full; so that size is no distinction. With regard to the colour of the feet, I can also say that the blackheaded gull in spring (particularly at two years old) has the feet and bill the colour of L. capistratus, caused by the transmuting of the dull scarlet of winter to the arterial blood-red of summer; in autumn *vice versâ*. With regard to the mask I have shot blackheaded gulls in autumn (the time, too, when masked gulls are generally shot) with the masked appearance of L. capistratus: this I always found was caused by the autumn moult, the back of the head turning white before the front. In spring birds transmuting often assume the *mask* before the *hood*. In fact, I have seen gulls in spring and autumn with the back of the head black and the front white, one side of the head brown the other white, the forehead and round the eyes brown, making a perfectly spectacled gull; and, lastly, the hood consisting of brown and white feathers. Last autumn I could have recorded two perfectly masked gulls, but on blowing up the feathers I saw the white ones sprouting, and at *the nape*, in one, was one *brown* feather still. On this subject I have worked hard and killed many poor blackheaded gulls, and also used the telescope freely, and have come to the conclusion, with Thompson, that *our* so-called "masked" are only blackheaded gulls, and I fear many of those in collections would not bear a critical examination. I have seen some admirable "get ups" with dealers; blackheaded gulls that were in strong moult about the nape, with the few remaining brown feathers pulled out, thus leaving the mask. Many acids also will reduce brown feathers to white, and if carefully used the sooty brown of L. ridibundus to that of L. capistratus. It is strange, too, how *easily* some dealers get the eggs of this gull.

HARRY BLAKE-KNOX.

Dalkey, Co. Dublin, May, 1866.

NOTICES OF NEW BOOKS.

'A Dictionary of British Birds,' reprinted from Montagu's 'Ornithological Dictionary,' and incorporating the additional Species described by Selby, Yarrell in all three editions, and in Natural History Journals. Compiled and Edited by EDWARD NEWMAN, F.L.S, F.Z.S., &c., &c. 400 pp. demy 8vo. Price Twelve Shillings.

Nothing in the art of criticism is considered more legitimate than for an author to review his own productions; but in the notices which appear from time to time in the 'Zoologist,' there is an obvious departure from rule in my candid admission that each is written by myself: the orthodox way being to seduce the reader into the belief that be is perusing the lucubrations of some perfectly independent and most competent judge of the performance under consideration. The temptation to this line of conduct in my individual instance, is greatly diminished by the firm conviction that any little playful deception of this kind would be most readily detected, and that the detector would proclaim his discovery far and wide. Instead, therefore, of affecting mystery in the matter, I shall content myself with stating that the Dictionary has been a labour of years, that it has cost me a great deal of time and money, and that every ornithologist who purchases a copy will do me a favour for which I shall feel grateful.

To give an analysis of a dictionary, with or without commendation is clearly impossible: but it is a comparatively easy task to reprint the Preface, which is a kind of promissory note; and then to select one or two examples of the performance. Should the influence of these extracts prove favourable I am clearly entitled to the benefit; if unfavourable I must abide the consequences.

Editor's Preface.—"To Colonel Montagu's admirable Introduction I have not a sentence to add as regards the natural history of British birds: nevertheless it seems desirable to give some account, however brief, of my editorial stewardship. In the first place, I desire explicitly to state that I have taken nothing from the text of the original work; and in the second place, I have added scarcely anything of my own: in no instance have I overlaid the original with my own observations, altered the author's obvious meaning to suit my own views, or attempted to controvert his assertions because at variance with my own more limited experience: nevertheless important additions have been made, which I will endeavour to explain.

"1st. Observation and discovery are incessantly at work; and these daily add to our store of knowledge: it is no more probable that Science will remain stationary than that this earth will discontinue its rotation: both events are possible, but so improbable that they may not enter into our calculations: hence the voluminous additions made by Colonel Montagu to his original labours; between 1802, the date of the Dictionary, and 1813, the date of the Supplement, he collected new materials more than equal in bulk to the original work: these are now incorporated. In 1833, twenty years subsequent to Montagu's Supplement, Mr. Selby produced his 'Illustrations of British Ornithology,' and in this admirable work he added twenty-four species to those previously recorded as inhabitants of Britain. Mr. Yarrell published the first edition of his 'History of British Birds' in 1843; a second edition appeared in 1846, and a third and final edition in 1856. In these three editions no less than fifty-nine additions were made to the number of species described by Selby, and eighty-three to those described by Montagu. The 'Zoologist' has added twenty-one species, and the 'Ibis' two species, not included in either of our systematic works. It must, however, be stated, in fairness to those gentlemen whose researches have contributed so largely to the enormous addition of one hundred and six species since the time of Montagu, that the records and descriptions of many of these appeared first in the 'Zoologist,' and were transferred from thence to the admirable work of Mr. Yarrell; but I most willingly give that work the credit of all these additions, on account of its systematic character. From these several sources are derived the whole of my editorial additions, as regards number of species.

"2nd. Immediately following the English name of each bird, is a reference to a figure in the third edition of Yarrell's 'History;' that work is not selected on account of the accuracy of the figure, which is generally commendable, but because of the completeness and high character of the work itself: Bewick's figures are referred to by Montagu, and of these representations it is impossible to speak too highly: many of the birds he has depicted I have never seen living, and therefore can pronounce no opinion as to the truthfulness of their positions, but a large proportion of the birds figured by Bewick are familiar to all, and the figures are more like instantaneous photographs of living creatures than the result of pencil-work in an artist's studio. They are almost miraculous, and show how forcibly the form and action of each bird must have impressed itself on the draughtsman's memory. Of the letterpress of the work which bears Bewick's name the truest kindness to that honoured memory will be shown by passing it over in silence.

"3rd. Following the reference to Yarrell's figure of the bird, is one to Hewitson's figure of the egg: the accuracy of these figures, carefully drawn and exquisitely coloured, leaves nothing to be desired. The third edition of the 'Oology' is cited in every instance.

"4th. In the descriptions of the rarer species, I have quoted from the 'Zoologist' additional instances of their occurrence: many similar records occur in the 'Field' newspaper, but are not cited when the communications are anonymous.

"All these additions are distinguished from Colonel Montagu's text by editorial brackets, and in every instance the source whence they have been derived is carefully indicated.

"Notwithstanding the pains I have taken to collect and incorporate these various records, I am bound in fairness to state that I regard a great number of the species now added, as well as of those described by Montagu, as not having the slightest claim to the title of British birds. I confess this seems something like building a house of cards and blowing it down again. My duty, however, seems to me very plain. Like my great predecessor, I have collected and arranged these records; and, like him, I express the opinion that in a purely scientific point of view they are utterly worthless. The time seems to have arrived when the conscientious compiler must eliminate all these interlopers.

"I believe the utmost injury has resulted to Science in this country from the desire to multiply the number of our species: naturalists have sought to effect this in more ways than one; in many instances the differential characters of age, sex and season have been urged on our attention; but in still more, the productions of other countries have been recorded as our own. The dealer holds himself excused in this;

but with the NATURALIST, properly so called, truth is the paramount object of search; and he regards with repugnance, I may almost say abhorrence, every attempt at imposition.

"In cases where additional synonymes or authorities occur in the Supplement, they have been incorporated with the others; but any additional species or remarks are retained under the respective heads of Supplement and Appendix.

"With these brief observations, which I trust will at any rate receive the candid consideration of some of my readers, I commit my book to their care, comforting myself with the reflection that the desire to be useful has been the prompting cause of my laborious but agreeable undertaking."

EXAMPLES OF THE BOOK.

[*Flycatcher, Redbreasted.*—Muscicapa parva, *Bechst. Naturg. Deut.* v. 3, p. 442; *Temminck, Manual d'Ornithologie,* vol. i. p. 159; *Gould, Birds of Europe,* plate xii.—"The adult male has all the upper parts of an uniform shade of cinereous-red, which assumes a slightly blue tint above the ears; the wing-feathers are cinereous-brown; the four middle feathers of the tail, and the tips of the side feathers of the tail, are blackish; these last are pure white at their base; throat, fore part of the neck, and breast bright red; flanks reddish; the remainder of the under parts white: bristles at the base of the beak very long; beak and legs brown. Length 4 inches 5 lines. The adult female has the red of the breast and neck much duller, and all the other colours less distinct. At present I am only well acquainted with the young of this species. They are of a very bright red on the breast and flanks; the throat white, slightly tinged with red; all the upper parts ash-coloured; the wing-feathers margined and tipped with red; the side feathers of the tail white, tipped with cinereous-brown: in this state it is the Muscicapa parva of Bechstein, Naturg. Deut v. iii. p. 442; Kleiner fliegenfauger, Meyer, Tasschenb. Deut. v. i. p. 215. *Note.*—This species, for which I am indebted to my friends in Germany, is there migratory, but very difficult to procure. I have not heard that the species has been seen elsewhere; probably it only passes through France in its migrations. I am unable to say whether it has a double moult, but I suppose so. It inhabits the vast forests of Germany only during the very short breeding season: it is common in the eastern parts of Germany towards the south: it feeds on small insects. It builds on the united branches of two neighbouring trees, or in a fork of the branches."—*Temminck*, i. 158. "The moult of this species is single, but the colours of the plumage, especially of the under parts, change periodically, from the same cause as those of Muscicapa grisola and M. albicollis. Muscicapa parva and rufogularis of Brehm, Vog. Deut. p. 227. Atlas du Manuel, pl. lithog., the male in spring. Naum. Naturg. Neue Ausg. pl. 65, fig. 3, the young bird of the year. Inhabits the neighbourhood of Vienna, but it is not common: it is more abundant in Hungary. It has just the appearance of the Redbreast, which it resembles in the tints of its plumage; it also possesses the warbling song of that bird."—*Temminck*, iii. 85. We are indebted to Mr. Gould for making known to us the addition of this interesting little bird to the avi-fauna of Britain; all that is known respecting it is recorded by Mr. E. H. Rodd in the 'Zoologist;' the first notice is in the volume for 1863, at p. 8444:—"The following communication, which I received from Mr. Gould, enables me to add the above interesting and (to Western Europe) rare species to our Cornish list of birds:—'Strange to say, on the very day I visited Falmouth one of the rarest of European birds was shot for the first time in Great Britain, and, it being killed in Cornwall, I thought you would like to know something about it. The bird in question is the Muscicapa parva, and you will find figures of it in Part 14 of my 'Birds of Europe,' which you have in the Penzance Museum. The plates will at once give you an idea of this pretty species (a robin amongst the flycatchers). I certainly never expected this singular bird to have been added to our Fauna. This occasional lateral migration of birds is very singular: the proper home of the species is Western India or the eastern parts of Europe. The specimen was sent in the flesh to Dr. Gray, of the British Museum, and in this state I had it in my hands, so that there is no mistake about it. The bird was in good condition, thanks to your genial climate. The bird was shot on the 24th of January, by Mr. Copeland, of Carwythenack House, in the parish of Constantine, near Falmouth, and is a female. Unfortunately the specimen was placed in some insecure place, and the head was eaten by mice or rats, so that the body alone was sent to the Museum. If you write to Mr. Copeland, ask him to look out for the male, which will have a red breast.' I wrote at once to Mr. Copeland, whose attention to Natural History, and whose especial interest in observing the ornithological rarities in our county, I felt sure would ensure an accurate account of the capture of this little wanderer; and I received from him the following interesting remarks on the habits of this bird:—'Your favour has duly reached me. The little Flycatcher alluded to we observed some days before it was shot. Its habits were interesting, taking a great deal the character of our summer visitor. We first observed it on a dead holly tree; this tree and the ground around the house were its favourite resort. It was particularly active, skimming the grass to within about a foot, then perching itself, darted occasionally with a toss, resting either on a shrub or the wire fencing. There is another in the neighbourhood, for which a vigilant watch will be kept. I saw it a few days back in a plantation which is four hundred yards from my house. Should I be fortunate to capture it, you shall have due notice. I believe that with due attention many interesting visitors may be found.' I am unable to offer you any particulars of this valuable fact, except second-hand; but no doubt, upon the two authorities I have quoted, you will feel a pleasure in giving the visit of this new British bird a place in the 'Zoologist.'" The second and only other notice is at p. 8841 of the same volume:—"Amongst the various arrivals of different birds, in their migratorial movement at this season of the year at Scilly, Flycatchers were observed on Friday last, three of which were captured, one of them from its smaller size being taken for a Chiffchaff. The four outer semi-white tail-feathers arrested the attention of my nephew and Mr. A. Pechell, who were the captors, and they were sent over here for my inspection. The little bird, from the description my nephew gave before I saw it, led me to believe it would prove a second specimen of the Muscicapa parva. He writes:—'Pechell has sent three little birds to be preserved, and we want your opinion about them. Two, we think, are young Pied Flycatchers; the third seems to be something like a Chiffchaff, but the tail is not right, and the white feathers seem odd. I think they are all young. The actions of the bird with the white tail were those of a Flycatcher.' On examining this third and small bird, it proved to be the Redbreasted Flycatcher. The sides of the breast are tinged with buff-brown, which colour is perceptible across the breast. The chin and middle parts of the breast and belly white, not quite pure. The four outer tail-feathers with their basal halves irregularly white, leaving the tips to the extent of two-thirds of an inch brown. I venture an opinion that this is an immature male bird." There can be little doubt, now that attention has been called to this little bird, and its similarity to the Robin, both in song and plumage, pointed out, that we shall have numerous other records of its occurrence in the British Isles.]

[*Grouse, Sand.—Syrrhaptes.*—A genus of birds, of which the characters are: Beak short, rather slender; first primary of each wing, and two middle feathers of the tail, terminating in a long, slender, naked shaft: legs densely covered to the nails with short feathers; hind toe wanting, the remaining toes somewhat dilated, united throughout their length, and forming a flat scabrous sole: nails broad and flat, scarcely bent.]

[*Grouse, Sand, Pallas'.—Ibis*, ii. 4. Syrrhaptes paradoxus, *Illiger*. Tetrao paradoxus, *Pallas, Itin.* ii. *App.* p. 111, tab. F.; *Zoograph. Rosso-Asiat.* ii. p. 74.—MALE: Beak (stuffed bird) dark horn-colour. Forehead, and space between the beak and eye and over each eye, orange-yellow, continued backward down the sides of the neck in a richer tint, and divided by a streak of stone-colour from the bright patch of reddish orange pervading the chin, and throat in front. Breast rich stone-colour, inclining to pink, bordered with four darker pencilled lines, from the point of each wing, when closed, across the chest, the dark lines crossing each feather near the tip, but edged with stone-colour. Breast below these lines, and flanks, much more pink, with a dark broad abdominal band, showing some pinkish feathers, crossing the stomach in front of and between the legs. Vent and under tail-coverts white. Feet and legs buffy white, feathered to the claws. Ground colour of back and wings rich buff, each feather banded with black and tipped with buff. Scapulars more unevenly marked. Point of wings with a few dark blotches, but the wing-coverts rich buff, tinged with a slight shading like a fine water-marking. Across the secondaries a rich chestnut bar. Primaries greyish blue; shafts black; first primary shaft elongated. Tail-feathers barred like the back, except two centre ones, blue in tint and elongated. (Autumn plumage). FEMALE: Upper part of head black. Wings and all upper parts streaked, spotted and barred with blackish brown on a buffy ground, giving a mottled look, like a Kestrel. Over the head, extending to back of each eye, a streak of lemon-yellow, similar to the gular patch, which terminates in a dark ring, not observable in the male at any time; the lemon very bright. Breast, all the wing stone-colour, not so pink as in male. Broad band across the abdomen like the male, but more reddish in some. Feet and legs same as in male. Tail-feathers slightly elongated. Vent white. Primaries greyish. Secondary bar reddish chesnut. (Female, July). This bird is a native of Asia, more especially of the Chinese Empire. Mr. Swinhoe informs us it is very abundant, during winter, on the plains between Pekin and Tientsin, flocks of hundreds constantly passing over with a swift flight, not unlike that of the Golden Plover, for which bird they were at first mistaken. "The market at Tientsin," says Mr. Swinhoe, "was completely glutted with them, and you could purchase them for a mere nothing. The natives call them Sha-chee, or Sand-fowl, and told me they were mostly caught with clap-nets. After a fall of snow the capture was the greatest, for where the net was laid the ground was cleared and strewed with small green beans. The cleared patch was almost sure to catch the eye of the passing flocks, who would descend and crowd into the snare. It only remained then for the fowler, hidden at a distance, to jerk the strings, and in his hawl he would not unfrequently take the whole flock." Mr. Swinhoe was told that these birds are found abundantly in the great plains of Tartary beyond the Great Wall, where they breed in the sand. The same accomplished ornithologist says they possess rather a melodious chuckle, the only note he has heard them utter. The advent in Britain of this species is the most remarkable ornithological fact that has occurred for very many years. The bird was previously unknown to the European Avifauna; for although the name was twice introduced into our list, it was also twice struck out, under the conviction that the bird intended was a species of Pterocles long known to ornithologists as an inhabitant of the South of Europe. The first record of this bird's occurrence in Britain will be found in the 'Zoologist' for 1859, at p. 6728, where Mr. Moore, of Liverpool, records that a single specimen was killed near Tremadoc, in Wales, on the 9th of July of that year; two others were seen, but escaped. About the same day a specimen was killed on the opposite side of the Island, at Walpole St. Peter's, in Norfolk; this was an adult male, in perfect plumage (see Zool. 6764). On the 23rd of the same month one of these birds was killed on the Continent, at Hobro, in Jutland, and another seen a few miles from the same locality, as recorded by Mr. Newton (Zool. 6780). An interval of three years passed over before the bird was again observed, and then it made an invasion in force. Great pains have been taken by naturalists in every part of the kingdom to transfer to the 'Zoologist' a record of every instance in which the bird was obtained or seen; but many of these records remain incomplete, owing to the carelessness and indifference of writers, who are not themselves naturalists, in wording their communications, and in failing to give that precise information which the naturalist regards as of primary importance. In the first place, it may be observed that three out of every four communications sent to the public papers had neither the names nor addresses of the writers; an equal number had no dates of the occurrences; and again, almost the only clew afforded to the sex of the visitors is from the bird-stuffers evidently mistaking males for females, and recording them accordingly: those few instances in which the specimens were pronounced females, on account of the presence of two large and equally developed eggs, were certainly adult males, exhibiting indications usual at the breeding season; a few others, which fortunately fell into the hands of naturalists, were as certainly females, clusters of minute undeveloped eggs being detected in their ovaries. Mr. Henry Stevenson, of Norwich, a most accomplished ornithologist, has taken the greatest pains to elicit the truth from a mass of conflicting and confused evidence on this subject, and has published the result in two invaluable papers in the 'Zoologist,' pp. 8826 and 8849, but his researches have extended only to the counties of Norfolk and Suffolk, and therefore scarcely form a sufficient basis for a general record. In these admirable papers Mr. Stevenson fixes the number killed in Norfolk at fifty-five, and in Suffolk at thirteen; of these, thirty-five were females, which shows that the sexes were about equal in number. It will be seen from Mr. Swinhoe's remarks, already quoted, that in its native country this is a migratory species; and we find that the direction of flight, as the breeding season approaches, was westward from China towards Chinese Tartary. It may also be gathered, from various observations made on the Continent of Europe during the summer of 1863, that its progress continued in the same direction; and further inferred, from the various detached remarks of observers in England, that this great migratory movement was still continued in the same direction, and therefore was not in accordance with the simple law which governs the great vernal and autumnal movement, the direction of which is from south to north in the spring, from north to south in the autumn. A vast majority of migratory birds are insect-feeders, and when the supply of insect-food fails, as it invariably does at the approach of winter, they remove to southern climes where winter has no existence; but here was a migratory movement of a very decided character, in which the ordinary migratory impulse seems to have been entirely absent. The arrival on British land seems to have commenced about the third week in May, and to have continued uninterrupted until the third week in June, when it ceased entirely, for we cannot but conclude that the examples of this bird subsequently found had arrived during the month included between these dates; during this period at least two hundred and fifty, and probably three hundred, were destroyed. This view of the direction taken during this abnormal migration is certainly supported by the evidence of Mr. Gatke, who, writing from Heligoland, says (Zool. 8724), "This very beautiful and interesting stranger was first observed and shot here on the 21st of May, the weather being very fine with a moderate easterly breeze. Each successive day up to the earlier part of June, it was seen here in flocks from about three, five or fifteen, to fifty, and in one or two instances even to a hundred. Out of these nearly thirty have been shot; the earlier birds being, with two exceptions, all very fine male specimens; the later nearly all female birds; every one of them in the most perfect plumage. After a lapse of a fortnight, *viz.*, on the 22nd of June, six sand grouse again made their appearance; out of these five were shot, all female birds, whose plumage no longer had the fresh and tidy appearance of the earlier instances; so that all through this abnormal and mysterious excursion of the species they still adhered to the rules of birds on a regular spring migration; that is, the males forming the van, the finest old specimens come first, after which the females make their appearance, the rear being invariably made up by weak, badly developed or injured individuals of a shabby appearance. I was so fortunate as to obtain two living specimens of this sand grouse, a male and a female, both of which for a while went on very well; but yesterday, to my great regret, I discovered that the female had died. The abdomen of this bird had the appearance as if containing a developed egg, which on examination, however, proved to be a solid accumulation of a gritty calcareous substance, of the size of a large walnut. It would be very interesting if these birds were to breed on the English moors. Although I have little doubt that, if at convenient localities they are left undisturbed, such will be the result, it also is my opinion that in the autumn the offspring, together with the parent birds, will depart for their original fatherland, never to return. But a future different result would perhaps be obtained if such young birds were to be procured before fully fledged, kept well during the winter, and set at liberty the following spring near such localities as their parents had chosen for their nidification. If during this season any young sand grouse are reared in England or on the Continent, I am sure one or other of them will turn up on Heligoland." It thus seems quite certain that the arrival of these birds in

Heligoland was as nearly as possible simultaneous with their arrival in England, a circumstance by no means remarkable when we recollect that ornithologists have calculated the rate at which birds can fly at the rate of forty, fifty and even sixty miles an hour, and therefore that only a few hours of continuous flight would be necessary to accomplish the distance between the continent of Europe and any part of the British Islands. No hypothesis can be more plausible than that the very birds which rested on the ocean islet of Heligoland made their appearance, on the days immediately following, on the coast of Essex, Norfolk, Suffolk and Lincolnshire. It is not, however, to be overlooked that the bird arrived almost simultaneously at very distant and very opposite parts of the kingdom; thus, commencing at Heligoland, on the 21st of May, we find them on the 22nd of May on Walney Island, off the west coast of Lancashire (Zool. 8687); on the 23rd, in Norfolk (Zool. 8718); on the 26th, at Aldershot (Zool. 8683); on the 27th, at Forest Gate, in Essex (Zool. 8684); on the 28th at Thorpe, in Suffolk (Zool. 8685); on the 29th, in Essex (Zool. 8684). Touching the food of the sand grouse while in England, we have evidence that no imperfection of observation can mystify, and no future observations can possibly confute: this evidence is derived from a careful examination of the contents of the stomach by botanists in all respects competent to pronounce an opinion: the seeds have also been sown, and the result has in every case verified the previous conclusion. Nothing but seeds and very minute stones has been discovered. The seeds belong to seven natural orders of plants; amongst the Cruciferæ, Capsella bursapastoris, Brassica napus, Sinapis arvensis, and Raphanus Raphanistrum; amongst the Caryophyllaceæ, Sagina apetala and S. procumbens, Stellaria holosteum and S. media; amongst the Leguminosæ, Ulex europæus, Genista anglica and G. tinctoria, Cytisus scoparius, Ononis spinosus, Medicago minima, Trifolium repens, T. pratense and T. suffocatum, and Lotus corniculatus; amongst the Plantaginaceæ, Plantago major and P. coronopus; amongst the Chenopodiaceæ, Chenopodium olidum, C. Bonus-Henricus and C. album, and several others doubtfully ascertained; amongst the Polygonaceæ, Polygonum aviculare, P. fagopyrum, P. convolvulus and P. persicaria, Rumex palustris, R. acetosa and R. acetosella; amongst the Gramineæ, Poa annua. It will be observed that all these seeds are of small size, and consequently the numerical supply required to fill the stomach is very large indeed.]

[*Tern, Swift.—Ruppell*, pl. 13: *Baron R. K. von Warthausen*, *Ibis*, 1860. Sterna velox, *Ruppell, Atlas*, pl. 13: *Thompson, Annals of Natural History* for September, 1847, xx. 170; *id. Natural Hist. of Ireland*, iii. 266; *Schlegel, Revue Crit. des Ois. d'Europe*, p. 115; *Degland, Ornith. Europ.* p. 335. ? Sterna cristata, *Swainson, Birds of Western Africa*, p. 247, pl. 30.—"Wings and longest tail-feathers about of equal length; outer or longest tail-feathers exceed the middle by three inches. Bill wholly yellowish horn-colour; legs and toes wholly black. Colour of the entire plumage the same as that of the Common Tern (Sterna Hirundo), but the back is of rather a darker shade than that of the latter when adult. The black on the head does not reach within one-third of an inch of the bill; space between the termination of the black plumage and the bill pure white."—*Thompson*, l. c. A specimen of this bird was shot by Mr. Lynch, of Cork Street, Dublin, near Sutton, a place between Dublin and Howth, at the end of December, 1846: two others of the same species were seen: full details are given in the 'Annals of Natural History,' in the 'Zoologist' for 1847, at p. 1878, and in Thompson's 'Natural History of Ireland,' as cited above. It is known as an inhabitant of the Red Sea, Eastern and Western Africa, and the Mediterranean as far west as Sicily. "Found breeding on the low treeless sand island off the Luabo mouth of the Zambesi, in the month of January. The nests, which were placed a few yards from the tide-mark, consisted of slight hollows in the sand, with a few sticks gathered round. They were quite open and exposed, or placed occasionally under shelter of any log of wood cast up, but never in the centre of the island. This place is well protected from visits of monkeys by a wide extent of water."—*Dr. J. Kirk on the Birds of the Zambesi Region, Ibis*, 1864, p. 337. The following particulars of its eggs leave nothing to be desired:—"I have fourteen eggs in a good state of preservation, and five injured ones, collected on the Island of Lobo (Archipelago of Dahalak), 1st. Aug. 1857. They are distinguished from all the eggs of Sterna hitherto known by their considerable size, and beautiful and very varied colouration. Their length reaches 25—29, their breadth 17½—18½, lines; their weight amounts to 57—70, generally to 60, grains. The ground colour is greenish white, greenish grey, reddish white, incarnate or violet-rose. The greenish specimens have, as in Alca torda, large blackish brown burnt spots and grey clouds; the reddish ones mostly smaller, rounded, sometimes also burnt spots, the colour changing from the centre to the margin, as stated above, and frequently short and numerous flourishes of a chesnut-brown (rarely entirely black or light brown), nearly red colour. In several specimens the flourishes are as large and as well-developed as in the finest eggs of Uria troile. Bluish grey markings lie deeper in the substance of the shell, and sometimes little conspicuous in the whitish specimens. They generally correspond to the external spots in size, form and situation, and appear rarely as larger clouds in dotted eggs. One specimen is uniform greenish white. Reddish eggs held against a light are transparent yellowish green, greenish ones bluish green. The granulation is strong, coarse, longitudinal, with rounded pores and deep pits."—*Baron R. K. von Warthausen, on the Nidification of certain Birds in North-Eastern Africa, Ibis*, 1860, pp. 127, 128.]

It may be observed that these three species are not noticed in any systematic work on the Birds of Great Britain.

I have only to add that I most earnestly solicit additions and corrections, which will be published from time to time when sufficient to occupy sixteen pages, printed uniformly with the body of the work. These sheets of supplementary matter will be given to the subscribers to the 'Zoologist.'

EDWARD NEWMAN.

Notes on the Mammalia of Norfolk (continued from S. S. 152).—

Weasel.—I have just added two varieties of this species to my collection, which I am informed were obtained in this county several years since. The first is of a pale yellowish brown, and the second an entire pure white: this latter is, I believe, a great rarity; at all events, this is the only instance I have heard or seen of its occurrence.

Otter.—Notwithstanding the mild weather we experienced during the past season, this species appeared rather abundant. Several instances of its occurrence passed within my notice, which I will now mention. A female killed near the River Waveney, in the parish of Gillingham, near Beccles, in January. In the early part of February two very young examples were obtained. A most splendid old male, weighing 27 lbs., accidentally trapped himself in a bow-net, set for the purpose of catching pike, in a dyke adjoining Ormesby Broad, near Great Yarmouth, attracted thither, of course, by its finny prey. I particularly noticed the chin, lips and throat of this specimen, which were perfectly white, the usual hue of those parts being of a dirty white or grayish brown, according to age. In March two examples, male and female, were received from the neighbourhood of our Broads, the former of which was an extremely fine otter, weighing just 30 lbs. In April a female was killed on Surlingham Broad: two young ones were also obtained from the same locality; a half-grown female killed at Burton Turf. Respecting my previous remarks on this species feeding on vegetable substances

(Zool. 9644), I beg to refer your correspondent Mr. Alston to a notice of this habit in the Second Series of the Rev. J. G. Wood's 'Natural History' (vol. i. p. 382), in which the author observes, "That when hard pressed they will have recourse to vegetable substances." I have had an opportunity of examining the stomach of one of the specimens above mentioned, which passed through my hands, but could not detect the slightest indication of vegetable matter, the season being so mild as to enable it to obtain an abundance of its more proper sustenance.

Common Rat.—Three or four piebald varieties have occurred during the course of the past season.

Common Hare.—A fine male specimen of the gray variety of the common hare was killed on the estate of Mr. J. Overman, at Burnham Sutton, near Wells, during the middle of January last. An example or two of this variety occur nearly every season in that neighbourhood (see Zool. 9646). I am informed that two other examples of this variety were also obtained about the same time as the above, one in the vicinity of Cromer and the other near Scole. An individual was killed at Stalham on the 5th of March; it was peculiarly marked by having a large patch of white on its forehead, extending from the tip of its nose to the base of its ears; the remaining hue of its coat as usual.

Common Rabbit.—In November, 1865, two varieties were obtained at Burlingham, near Norwich; the first of a pure white, with the exception of the usual reddish chestnut patch behind its ears, which, however, was much paler than in ordinary specimens. The other was of a uniform pale buff colour.

Red Deer.—A piebald example, an adult male, was killed on the Stanfield estate, near Wymondham, in the early part of October, 1865: its head was cut off and forwarded to this city for preservation.—*T. E. Gunn; 3, West Pottergate, Norwich, July*, 1866.

Remarkable Ball found in Ireland.—Some time since a ball was found on the surface of the ground in a grass-field near our house: it is about an inch and a half in diameter: the colour shades from light gray or slate-colour to dark gray or olive: the surface of the ball is uneven, and so hard that scratching on it with the point of a knife makes very little impression: the weight is light (little more than half an ounce); on one side is a small hole, and on inserting a pin you can perceive that the ball is hollow and has a number of cow's hairs inside it; the opposite side of the hole is slightly indented. Perhaps some of your readers could inform me what the material is of which this ball is composed.—*F. H. Battersby; Cromlyn, Rathowen, August* 18, 1866.

[I have examined the ball with great care, Mrs. Battersby having had the kindness to transmit it for my inspection; and the only suggestion I can make is that it has been formed in the stomach of a cow or calf from the aggregation of hairs licked off by the animal, and rejected from its stomach in the present remarkable form: I can add nothing to Mrs. Battersby's admirable description.—*Edward Newman.*]

Rats or Mice sucking Eggs.—In the number of the 'Zoologist' for August (S. S. 336) Mr. Jeffery makes mention of the fact of birds' eggs being found minus their contents, and having a small perforation in the shell. Two instances of the same have come under my notice, amongst others, as regards hen's eggs. Some years ago I saw, in the collection of Mr. Smellie Watson, Edinburgh, two common hen's eggs, each having two small and very regular-sided perforations in the shell, *one at each end*, and

Mr. Watson told me that they had been made by rats. Finding, no doubt, some difficulty attending the sucking of an egg with one hole only, the cunning depredator had had resort to two holes. Another similar instance took place here about two years ago, but I cannot be certain as to whether mice or rats were the thieves. I should incline, however, to the belief that mice more generally do so than rats, as one would suppose that rats could get more easily at the contents by simply breaking the shell, whereas mice would find more difficulty in doing so from their smaller proportions.—*J. A. Harvie Brown; Dunipace House, Falkirk, August* 3, 1866.

Description of a Shrew Mouse.—The specimen described below was taken alive, and apparently uninjured, at Leominster, on the 6th of August. It will be seen that it differs in some few particulars from any previously described.

Extreme length from tip of nozzle to tip of tail	5 inches.
From tip of nozzle to end of snout	·5 inch.
„ „ eyes	·575 inch.
„ „ ears	1 inch.
„ „ insertion of tail	3 inches.
Length of tail	2 „

Ears funnel-shaped, very thin, almost diaphanous, emitting a small acutely pointed lobe directed towards the crown of the head, and having a slight notch opposite this lobe: the ears are delicately white inside, and are fringed with snow-white hairs: no part of the ear projects visibly beyond the surface of the surrounding fur.

Eyes very small, black, each having an indistinct white patch composed of a few hairs behind and above it, conveying the idea of a white eyebrow.

Nozzle naked, deeply notched in the middle and projecting on the sides; nostrils large, opening laterally and outwardly, bordered posteriorly by naked skin: snout very long, attenuated towards the nozzle, and restricted before the eyes, and sparingly clothed above with short hairs, which are smoke-coloured, excepting a very slender median white stripe; the skin, of a smoky flesh-colour, shows through this sparse clothing of hair: the snout also emits a number of stout lateral bristles, most of which are black, but some few silvery white; these bristles are regularly graduated in length, increasing from the nozzle to the eyes, and each is slightly bent outward and forward.

Upper surface of the head, neck, back and tail glossy, smoky black.

Under surface smoky white, except round the anus, where the fur is dark smoke-colour: the division between the dorsal and ventral areas is clearly defined, the darker colour of the dorsal area descending into the legs: tarsi smoke-colour; feet and toes silvery.

Tail somewhat quadrangular, except towards the tip, where it is laterally compressed; the tail, feet and toes appear as if covered with small scales beneath the hairs, as in the musk rat; tail sparsely clothed with smoke-coloured hairs, and having beneath a slender median keel of pale hairs.

Doubtless some of these characters are common to all the species, but others appear to me to be new or to have escaped notice.—*Edward Newman.*

Spider or Mouse.—“He (a young hippopotamus) was scored all over by the tusks of some other hippopotamus that had been bullying him. Some of the men declared that his father had thus misused him; others were of opinion that it was his mother;

and the arguments ran high and became hot. They at length agreed to refer it to me, and both parties approached, vociferously advancing their theories; one half persisting that the young hippopotamus had been bullied by his father, and the other adhering to the mother as the cause. I, being referee, suggested perhaps it was his uncle. '*Wahillahi sahe!*' 'By Allah it is true!' Both parties were satisfied with the suggestion."—'*Albert N'yanza,*' *by S. W. Baker* (vol. i. p. 66). Some readers may perhaps smile at these imaginative and speculating disputants, and wonder what arguments could be used in favour of either the paternal or maternal hypothesis, seeing that there was an entire absence of knowledge of all antecedent facts; the avuncular hypothesis so humourously introduced has certainly no less claim to consideration, even though it may have no more. Are we not now in exactly the same position as regards the spider hypothesis and the mouse hypothesis? is there not in this case also an entire absence of the knowledge of all antecedent facts? Let me suggest a third hypothesis, which has certainly as much claim to consideration as either of the others. Being lately at Leominster, my brother informed me of a collection of moths' wings he had observed in the lower compartment of a building in his garden which was always kept closed at night, with the exception of an aperture over the door, about fifteen inches square: I immediately examined the spot, and found on a landing or flat at the top of some steps leading to the upper story a great number of the wings of the undermentioned Lepidoptera,—Chelonia caja, Triphæna pronuba, T. orbona, Xylophasia polyodon, Cucullia umbratica, Plusia Iota, P. Gamma, Apamea oculea and Acronycta Psi: about the middle of this landing the wings were absolutely crowded together, and intermixed with a very considerable quantity of the excrements of a bat: there were other wings on every one of the steps, and a greater number suspended in the cobwebs, which occurred here and there in all parts of the apartment. It may be added that a longeared bat (*Plecotus auritus*) was seen, night after night, careering round the building, and also hawking for Noctuæ that frequented the full-blown flowers in the immediate neighbourhood. Immediately after the investigation the landing and steps were cleared of the wings and excrement, and on a visit to the spot the next morning (it was half a mile distant from my brother's residence) I found a fresh deposit of wings, twenty-eight in number, good evidence that seven more moths had been brought to the block, and a fresh deposit of excrement exactly of the same kind as before. Now I might possibly settle the spider or mouse question by suggesting that an uncle of the moths had committed the murders in question, but with so similar a case before my eyes, I cannot escape the conviction that the graphically described scene in the cave at Ilkley was caused by a bat.—*Edward Newman; Leominster, August* 4, 1866.

P.S. August 20, 1866. When this was written I had not the most remote conception that Mr. Doubleday was taking up the subject, and would gladly withdraw this note, but that I had a leading partner in the investigation, who will have cause for dissatisfaction should I exclude the ray of light which has been thrown on the subject by our joint researches.—*E. N.*

Spider or Mouse.—I have just read Mr. Clogg's criticism (S. S. 349) on Mr. Birchall's "Note on the Field Mouse" (S. S. 8), and believe that both he and Mr. Birchall are mistaken in supposing that either mice or spiders destroyed the moths, the wings of which were found in such numbers in a cave at Ilkley. I am convinced that the real culprits were bats. When my friend Robert Dix lived at

Stanford Rivers Hall there was a small circular grotto in the garden, at the end of a narrow path closely shaded by trees and shrubs. Seats were fixed round this little grotto close to the walls. When at Stanford Rivers some years since, Miss Dix wished me to look at the wings of moths which were lying on the seats in immense numbers: they consisted of numerous species, including Triphæna pronuba, T. fimbria, T. orbona and T. janthina, Xylophasia polyodon, Amphipyra pyramidea, Agrotis suffusa, &c. I am convinced that these wings were those of moths carried there by bats, probably the longeared species, which differed much in its habits from the other British bats. Miss Dix is now here on a visit, and she says she has repeatedly seen the bats flying in and out of this grotto, and has no doubt whatever that they carried the moths there and clipped off their wings before eating the bodies. Mr. English once found twenty-four pairs of wings of Geometra papilionaria lying on the ground in one of the rides of Ongar Park Woods: no one surely will believe that these moths were destroyed by mice or spiders. When sallows grow over a pond the water is often strewed, when they are in bloom, with the wings of Tæniocampa gothica, T. instabilis, T. stabilis and other early species, and I am certain that this destruction is caused by bats. Wasps will bite off the wings of insects which they have captured, but I never saw a spider do anything of the kind with moths caught in its web, which I think would not hold some of the species, the wings of which were lying in the grotto at Stanford Rivers; and I do not believe that the moths were carried there by mice, as it would be almost impossible for them to capture some of the species, the wings of which were lying about in great numbers on the seats in the grotto.—*Henry Doubleday; Epping, August* 6, 1866.

Curious Scene at Sea.—On Friday last I was the eye-witness of a very extraordinary scene. We were sailing in a smooth summer sea, with a light wind, about a mile and a half S.S.W. of Carn Boscawen, between this place and the Logan Rock, in about thirty fathoms of water, when suddenly, within thirty fathoms of our port-bow, two very large fish rose perpendicular to the water, belly to belly, in close embrace, until nothing but the actual tail portions of their bodies remained immersed, and immediately fell back one on the other, causing a tremendous swirl as they sank. A second or two afterwards, and before the agitation of the water had disappeared, a fish, probably one of those we had seen, leaped out of the water through the swirl at an angle of forty-five degrees, to a height which left its tail clear by a few feet of the water, and of course immediately fell in again. Immediately afterwards my boat passed through the commotion in the waters caused by these proceedings, and we saw just astern the high and acutely-angled dorsals of two fish, apparently in company, rising from two to three feet above the surface of the water. About thirty fathoms south of these two fins, a similar fin was visible. We went on our way, and soon lost sight of them. The two fish rose from the water, and the single fish afterwards jumped, as I have mentioned, close to us, so close that I could distinguish the eye and the the position of the mouth of the jumping fish, as well as, of course, its colour, but the whole affair was momentary. Judging by comparison with the spars of my boat, our punt and other things at hand, the fish that jumped must have been close upon, if not more than twenty feet long, and in depth it was about as 1 in 5 to its length. Its head was very large; its mouth was situated well down in the lower part of the head, its eye was easily to be seen, and its colour was dark lead-blue over the back, and flake-white in the belly. So far as memory has served me in my researches since, the fish came nearest in appearance to the representation and descriptions at hand of the Globicephalus deductor (called by Cuvier Delphinus globiceps). The whole affair was pronounced by an old pilot who was with me to be the bottle-nosed porpoise "gendering" (*i.e.* in the act of copulation—"engendering"), and he said he had before seen the same sort of thing. To me the sight was a novel one, and the plunge of the big fish into the air so close to me was worth going many miles to see, albeit our "ancient mariner" comforted us with the assurance that the fish were roguish at such times, and that if this one caught us a blow with his tail we should infallibly be stove. —*Thomas Cornish*; *Penzance*, *July* 23, 1866.

Variety of the Blackbird.—I have just got a female blackbird with a number of white feathers in it, but only one white wing-feather. This bird has bred and moulted twice near here: it is not so white as it was before moulting the first time, but the proprietor of the place not being to be trusted for leniency, I have had to bide my time till I could quietly bag it for my collection.—*William Liversedge; 35, Stansfield Row, Burley, Leeds, July* 31, 1866.

Food of the Wood Pigeon.—Allow me to add two dishes to the wood pigeon's bill of fare you give (S. S. 310), *viz.* dock-seeds and beech-mast. The first I have found to be a frequent article of food, some birds I have examined having their crops distended with it alone; and I believe you will not open many pigeons in the autumn without finding some of the latter. My own idea is that wood pigeons do not consume much grain, but that they punish the crops of peas and beans severely for a few weeks in autumn.—*James Shorto, jun.; High East Street, Dorchester, July* 27, 1860.

Alpine Swift and Buffbreasted Sandpiper in Ireland.—When at Belfast, last May, Mr. Sheals, the birdstuffer, showed me a specimen of the alpine swift (*Cypselus alpinus*), which had been picked up dead by a fisherman near Lough Neagh. He also produced a well-mounted example of the buffbreasted sandpiper (*Tringa rufescens*), which had been shot (with another too much shattered for preserving) in the People's Park, near Belfast. I naturally wished to obtain these specimens, but it seems they are the property of a Mr. Joyce, who prizes them highly.—*Howard Saunders.*

Stone Curlew near Dorchester.—I had sent me yesterday a fine specimen of the stone curlew (*Œdicnemus crepitans*), which was shot about four miles from here whilst feeding with some wood pigeons. On dissection it turned out a young male bird. These birds are now very rare in this neighbourhood, and neither the man who killed it or the farmer on whose land it was shot could tell me what it was. The stomach was stuffed full of the wing-cases of two or three kinds of beetles.—*James Shorto, jun.*

Eggs of Baillon's Crake at Great Yarmouth.—On the 9th of June a friend of mine in this town was fortunate enough to obtain in the market four eggs of Baillon's crake, and on Saturday last another of my friends was so lucky as to get five eggs of the same species. Now as the above were obtained from nearly the same spot, it is reasonable to infer that they were laid by one and the same bird. I have looked over your excellent little work, 'Birdsnesting,' for a description of the nest, but I can find no mention of either bird, nest or eggs. Now my object in writing to you is simply to ascertain whether the nest is of any value or otherwise.—*John Overend; Great Yarmouth; July* 9, 1866.

[By a reference to my 'Dictionary,' it will be found that Baillon's crake has been previously known to breed in the eastern counties: I did not describe the nest in my 'Birdsnesting,' never having seen a verified egg, and having certain doubts about published descriptions. Mr. Overend would much oblige me by writing for the 'Zoologist' a minute description of the egg.—*Edward Newman.*]

Pisa Gibbsii and Sun-fish at Penzance.—I took a female specimen of Pisa Gibbsii on the 14th of June: it was from about six fathoms of water, and overgrown with corallines and little sponges, and was the home of many little shells. I also, on Thursday last, inspected a sun-fish of the common sort, which had been taken the day before basking on the surface of the water. There was nothing to remark to you about it, except perhaps its mouth. It was almost laughable to see a great square fish, weighing nearly a hundred weight and a half, measuring three feet by two throughout, with big fins besides, having nine inches of breadth across the skull and five inches across the body, with a mouth of only two inches and three quarters gape, not much larger than the circumference of the lip of an ordinary claret-glass. Any of the shark lot of the same weight would have had a gape of nine inches, exclusive of the ligaments which give some of them increased power.—*Thomas Cornish; Penzance, July* 23, 1866.

Insects on the Snow.—My respected friend, Dr. L. Imhoff, of Basle, has just favoured me with a few remarks on the subject of my paper in the July number of the 'Zoologist' (S. S. 273), which I am happy to communicate to its readers. This gentleman writes:—"It seems to me unlikely that any insects should voluntarily settle on the snow. Should they feel the want of appropriating a larger quantity of oxygen, or the necessity of cooling their bodies, they may attain their object by flying very close to the surface of the snow. On fine winter days, when snow covers the earth, we have in the plain the phenomenon that Tipulidæ, especially some species of Chironomus, fly about; but to my knowledge it has not yet been observed that they settle on the snow." May I ask, through the 'Zoologist,' whether anything of the kind has ever been noticed in England or abroad?—*Albert Müller; July* 26, 1866.

PROCEEDINGS OF SOCIETIES.

ENTOMOLOGICAL SOCIETY.

August 6, 1866.—Professor WESTWOOD, V.-P., in the chair.

A special vote of thanks to Mr. W. Wilson Saunders was passed, in acknowledgment of the hospitable reception given to the Members of the Society at Reigate, on the 6th ultimo.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:—'Transactions of the Linnean Society,' vol. xxv. part 2; presented by the Society. 'Verhandlungen der K.-K. zool.-botan. Gesellschaft in Wien,' vol. xv.; by the Society. 'On the Metamorphoses of Insects,' by Sir John Lubbock, Bart.; by the Author. 'The Zoologist' for August; by the Editor. 'The Entomologist's Monthly Magazine' for August; by the Editors.

Exhibitions, &c.

Mr. S. Stevens exhibited a collection of insects sent by Mr. Reed from Bahia, chiefly Coleoptera, and amongst which were some fine Cicindelidæ and Carabidæ, Odontochile, Dercyllus, Scarites, &c.; also a new Cetonia from Sierra Leone; and three species of Pogonostoma sent by Mr. Gerrard from Madagascar.

Prof. Westwood said that since the July Meeting he had had an opportunity of examining the remarkable beetle then exhibited and described by Mr. Pascoe, under the name of Ectrephes formicarum (S. S. 322); it did not belong to the Paussidæ, nor was it allied to Gnostus; the mouth was different from anything with which he was acquainted, possessing enormous mandibles, with an elongated triangular or conical moveable lobe; this was another instance of the extreme modifications of form found amongst insects frequenting the nests of ants.

Mr. Janson exhibited a box of Coleoptera collected by Mr. Charles Turner in the New Forest, amongst which was Quedius dilatatus found in the larva-burrows of Cossus ligniperda.

Mr. M'Lachlan exhibited a remarkably dark variety of Cabera pusaria, captured by Mr. Dorville at Alphington, near Exeter; the specimen was a male, and, whilst the body retained the ordinary milk-white hue, the wings were quite fuscous.

Mr. Bond exhibited Scoparia basistrigalis, a new species, recently characterized by Dr. Knaggs (Ent. Mo. Mag. iii. 1), and for comparison therewith specimens of S. ambigualis, the most nearly-allied British species.

Mr. Bond also exhibited two specimens of Catoptria microgrammana, a rare coast insect, and two specimens of Sericoris euphorbiana (*Zeller*), a species which had for some years been unique as British in the cabinet of Mr. Shepherd: both species were taken at Folkestone by Mr. Meek during the present season.

Prof. Westwood mentioned that it was only within the last few days that he had bred any of the perfect insect of Bombyx Cynthia at Oxford; so that his prospect of a second crop of Ailanthus silk was this year hopeless. Others, however, had succeeded in rearing the moth at an earlier period.

Prof. Westwood directed attention to a paper by Mr. Packard, just published in the 'Annals and Magazine of Natural History,' in which it was asserted that the pupæ of Hymenoptera go through a series of mutations of form, analogous to those of Chloeon, as detailed by Sir John Lubbock. He suggested that the hive-bee afforded a good subject for observations in corroboration of this theory.

Mr. M'Lachlan mentioned the capture, on the banks of the Mole, near Reigate, of Sisyra Dalii (Hemerobiidæ), on the occasion of the Society's excursion thither, on the 6th ultimo; and exhibited a collection of cases of caddis-worms, part of which were from Bavaria, and the rest had been collected by Mr. Albert Müller in the neighbourhood of Basle. Amongst them were some remarkable forms of the case of Halesus digitalus, the case (formed of sand) of Enoicyla pusilla, of which the larva is non-aquatic, and a singular case, of uncertain genus, formed of vegetable matter arranged transversely so as to form a partially angular tube closed by a solid operculum, in the centre of which were four small holes to admit the water.

The Secretary read a communication respecting the recent plague of locusts in Algeria, the serious character of which was confirmed by an official circular issued by Marshal Canrobert. The creatures first appeared during the month of April; coming from the gorges of the mountains, and the fertile valleys of the littoral, they descended first on the plain of the Mitidja and the Sahel of Algiers. Their mass, at certain points, intercepted the light of the sun, and produced an effect similar to that of the snow storms which, in the winter season, fall in Europe, and blot out even the nearest objects from the sight. The vegetation of the country offered an attractive bait to the destructive insects. A large portion of the colza, oat, late barley and vegetable crops were immediately destroyed, and in some parts even the interiors of houses were invaded. The Marshal used all his endeavours in encouraging the population in their efforts against the invaders; by his orders the troops were called out to help the colonists to combat the plague, and the Arabs, whose interests were also at stake, joined their efforts against the common enemy. In a few days enormous quantities of the insects were destroyed; but human efforts had little effect against these winged multitudes, which fled over the country, and only abandoned one field to fall upon another. It was impossible to prevent fecundation and the deposit of eggs, which quickly gave life to larvæ innumerable, so that the first swarms were soon replaced and centupled by new generations. The appearance of these young locusts is especially to be dreaded, on account of their voracity; the hungry myriads fell upon everything which had escaped the depredations of their predecessors. They filled up the water-courses, the canals, and the rivulets, and the troops had the greatest difficulty in preserving the water from infection. Almost at the same time the provinces of Oran and Constantine were invaded. At Tlemcen, where no locusts had appeared within the memory of the oldest inhabitants, the soil was covered with them. At Sidibel-Abbès, at Sidi-Brahim, and at Mostaganem, they attacked not only the tobacco plantations, the vines, and the fig trees, but also the olive trees, notwithstanding the bitterness of the leaves of the latter. At Relizabe and at Harba they invaded the cotton grounds. The road between Mostaganem and Mascara was literally covered with them along its entire course of fifty miles. In the province of Constantine the locusts appeared simultaneously from the Sahara to the sea, and from Bougie to Calle. At Batna, at Selif, at Constantine, at Gelma, at Bone, at Philippeville, and at Djidjelly, the people acted energetically against the invasion, but neither fire nor other obstacles offered to the progress of the insects were sufficient to prevent the destruction, which fell principally upon the European settlements. The damage done is immense, though it is impossible at present to ascertain the whole extent of the mischief, for the work of devastation is going on daily; such a terrible visitation has not been known in modern times.—*J. W. D.*

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